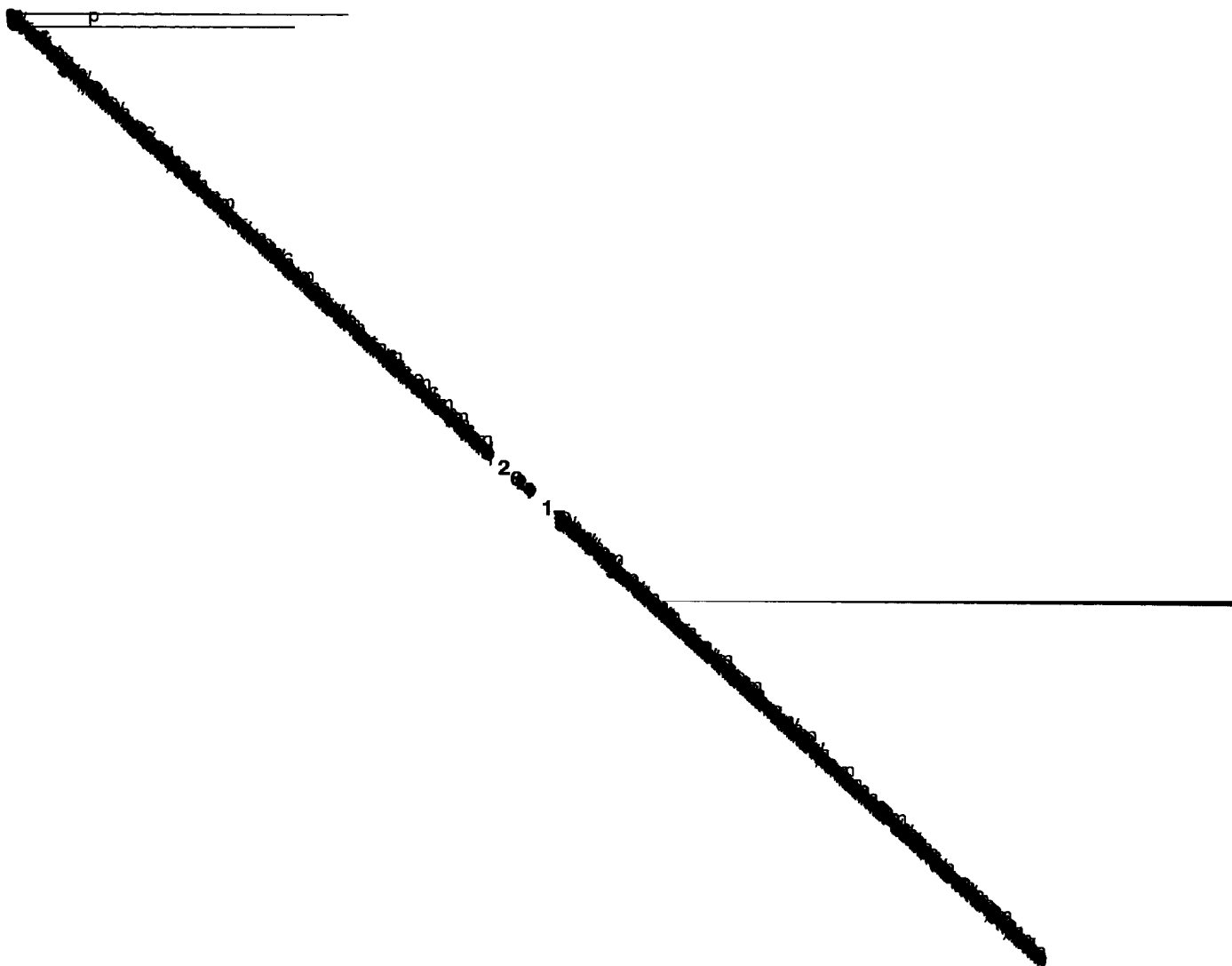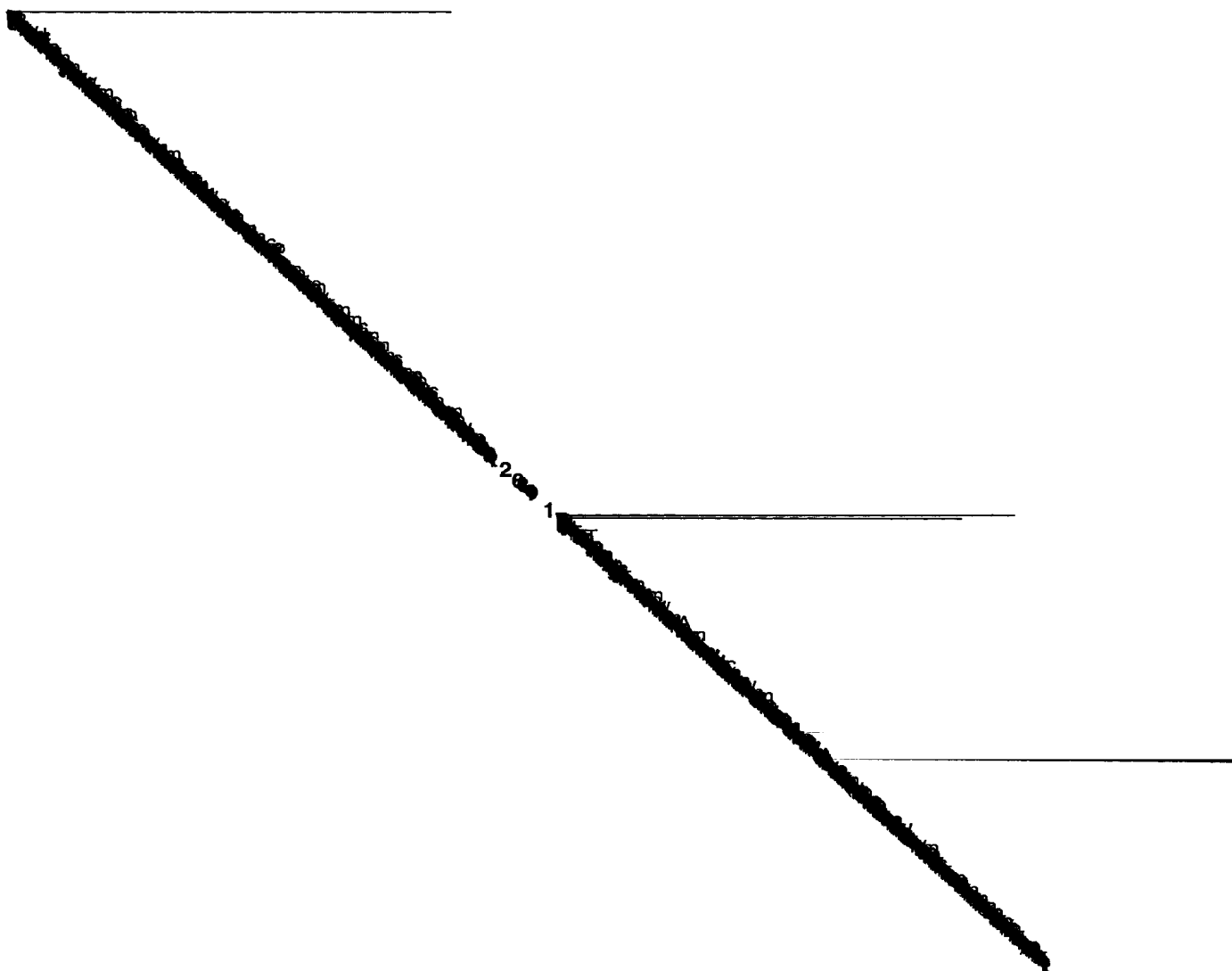p

2

1

1
2

conet, and the other peripheral apparatus such as the monitor apparatus 2 serve as slave BT apparatus. However, embodiments of the invention are not limited to the configuration in Fig. 1, and the number of apparatuses to serve as slaves may be increased or decreased within a limit of seven in the same Piconet. A BT apparatus other than the personal computer 1 may serve as the master as occasions demand.

[0022]   A configuration of a BT apparatus in the Piconet in Fig. 1 is shown in the block diagram in Fig. 2. Since Fig. 2 shows a configuration of a general BT apparatus, the information terminal apparatus in the figure does not put any particular limitation on the invention.

[0023]   Referring to Fig. 2, an antenna 10 transmits and receives electric waves in the 2.4 GHz frequency band during communication with other BT apparatus in the Piconet.

[0024]   A radio communication unit 11 is primarily comprised of a general purpose BT module as defined in the BT specification. The BT module is constituted by a high frequency processing unit connected to the antenna 10, a hop frequency calculating unit for performing calculations for frequency hopping, a base band signal processing unit for controlling transmitted packets and radio communications link and for managing processes such as error correction on transmitted signals and security control at communication procedures, a storage unit such as a flash memory for storing various data and a CPU for controlling each of those units comprehensively.

[0025]   A control unit 12 is primarily constituted by a microcomputer (hereinafter simply referred to as μCPU). The μCPU controls the operation of the BT apparatus shown in Fig. 2 as a whole and controls communication processes between an information terminal apparatus 17 and other BT apparatus present in the Piconet through the BT module.

[0026]   A storage unit 13 is primarily constituted by memory devices such as a ROM and RAM, and application programs for controlling the operation of the BT apparatus are stored here. The storage unit 13 also includes a so-called non-volatile RAM. For example, data such as the attributes of other BT apparatus to be connected in the Piconet are stored in such a non-volatile RAM.

[0027]   An interface unit 14 is a unit for connecting the control unit 12 and the information terminal apparatus 17 and so on. For example, a general-purpose interface such as a serial interface, e.g., an RS-232C interface and a parallel interface, e.g., a centronics interface is used by an the interface unit 14 to exchange data between the units.

[0028]   A display unit 15 is a data display unit utilizing a display such as a liquid crystal display or organic EL (electroluminescence) display and, for example, information such as the BT device addresses of the other BT apparatus present in the Piconet and the attributes of those apparatus is displayed on this unit.

[0029]   An operation input unit 16 is an operation input unit constituted by a keyboard or ten keys, and a user inputs various data and instructions from this unit.

[0030]   As shown in the Piconet configuration diagram in Fig. 1, the information terminal apparatus 17 corresponds to a peripheral apparatus such as a personal computer or a monitor apparatus, for example.

[0031]   In the block diagram of Fig. 2, the display unit 15, the operation input unit 16 and the information terminal apparatus 17 are shown separately. However, when the information terminal apparatus 17 has an information input/output unit such as a display or keyboard, a configuration may be employed in which such unit is substituted for the display unit 15 and the operation input unit 16. The present embodiment is based on an assumption that the BT apparatus to serve as the master is a personal computer and the BT apparatus to serve as slaves are monitor apparatus. Therefore, the following description will be made based on an assumption that a display screen and a keyboard of the personal computer and the monitor apparatus are used as the display unit 15 and the operation input unit 16 of both of the master and the slaves.

[0032]   Processes and operations of the first embodiment of the invention will now be described based on the flow charts in the accompanying drawings.

[0033]   First, processes and operations of the master BT apparatus (personal computer 1) will be described based on the flow chart in Fig. 3.

[0034]   A processing subroutine shown in the flow chart in Fig. 3 (hereinafter simply referred to as "the subroutine" or "the present subroutine") is one of so-called application programs for the BT module included in the radio communication unit 11. Specifically, the present subroutine is stored in a memory of the storage unit 13 along with a main routine program (not shown) for controlling the BT apparatus shown in Fig. 2 as a whole. The μCPU of the control unit 12 executes the present subroutine step by step at predetermined timing in synchronism with a clock incorporated therein.

[0035]   Therefore, the user may start the present subroutine by inputting a certain command from the information terminal apparatus 17. Alternatively, it may be started at predetermined timing, for example, at the time of so-called initialization e.g., when the terminal is powered on or reset. In other words, what is required, that the present subroutine is started when the user checks information terminal apparatus to serve as slaves.

[0036]   When the present subroutine is started, the control unit 12 first commands the radio communication unit 11 to perform "inquiry" processes at step 10.

[0037]   Upon receipt of such a command, the BT module in the radio communication unit 11 performs the "inquiry" processes in the Piconet shown in Fig. 1.
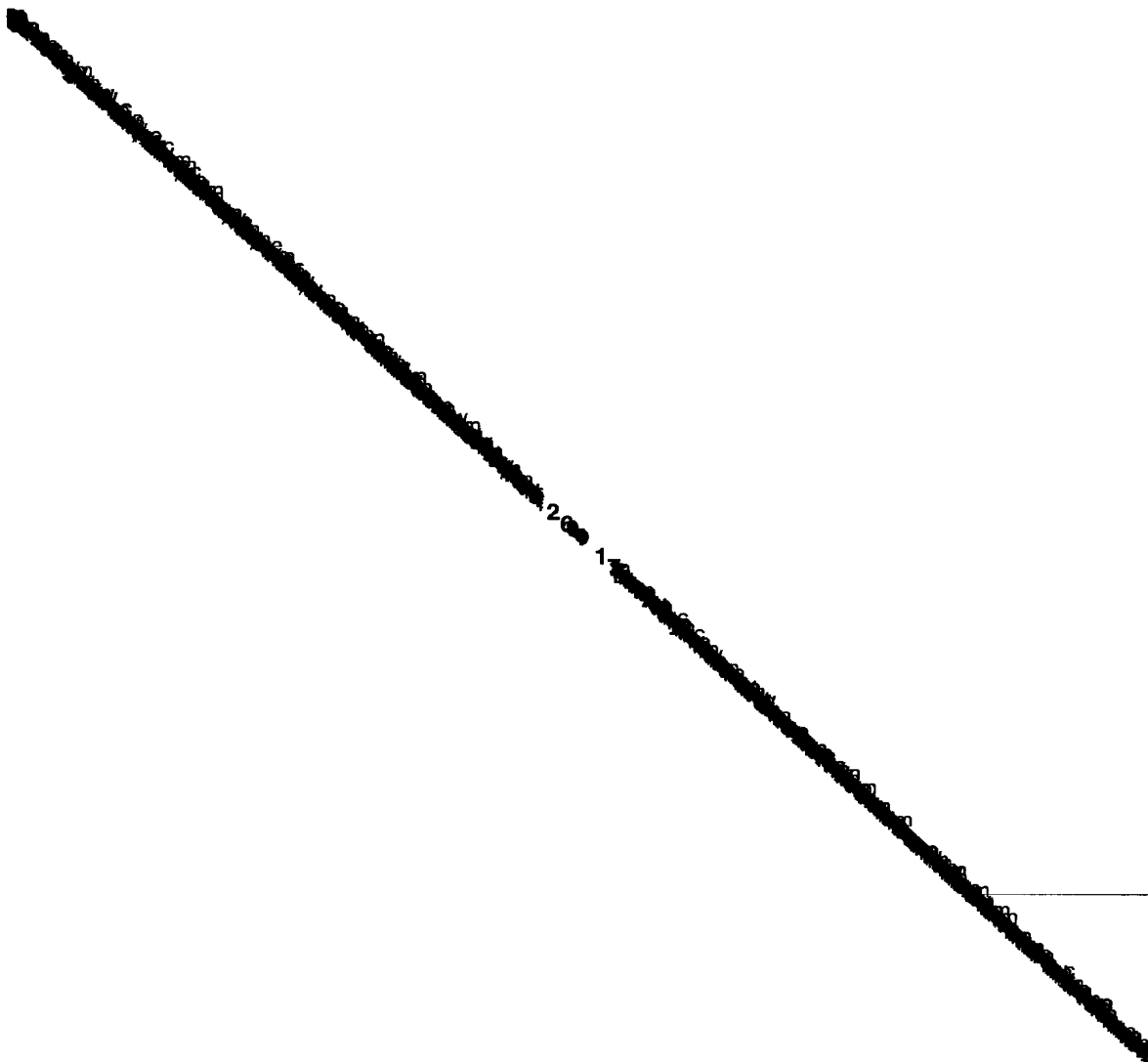
[0038]   In this connection, "inquiry" processes in a BT system are a communication procedure performed by the BT apparatus to serve as the master to check what kinds of BT apparatus exist in the neighborhood of the

1
2

1
2

2
1

2 1

2
1
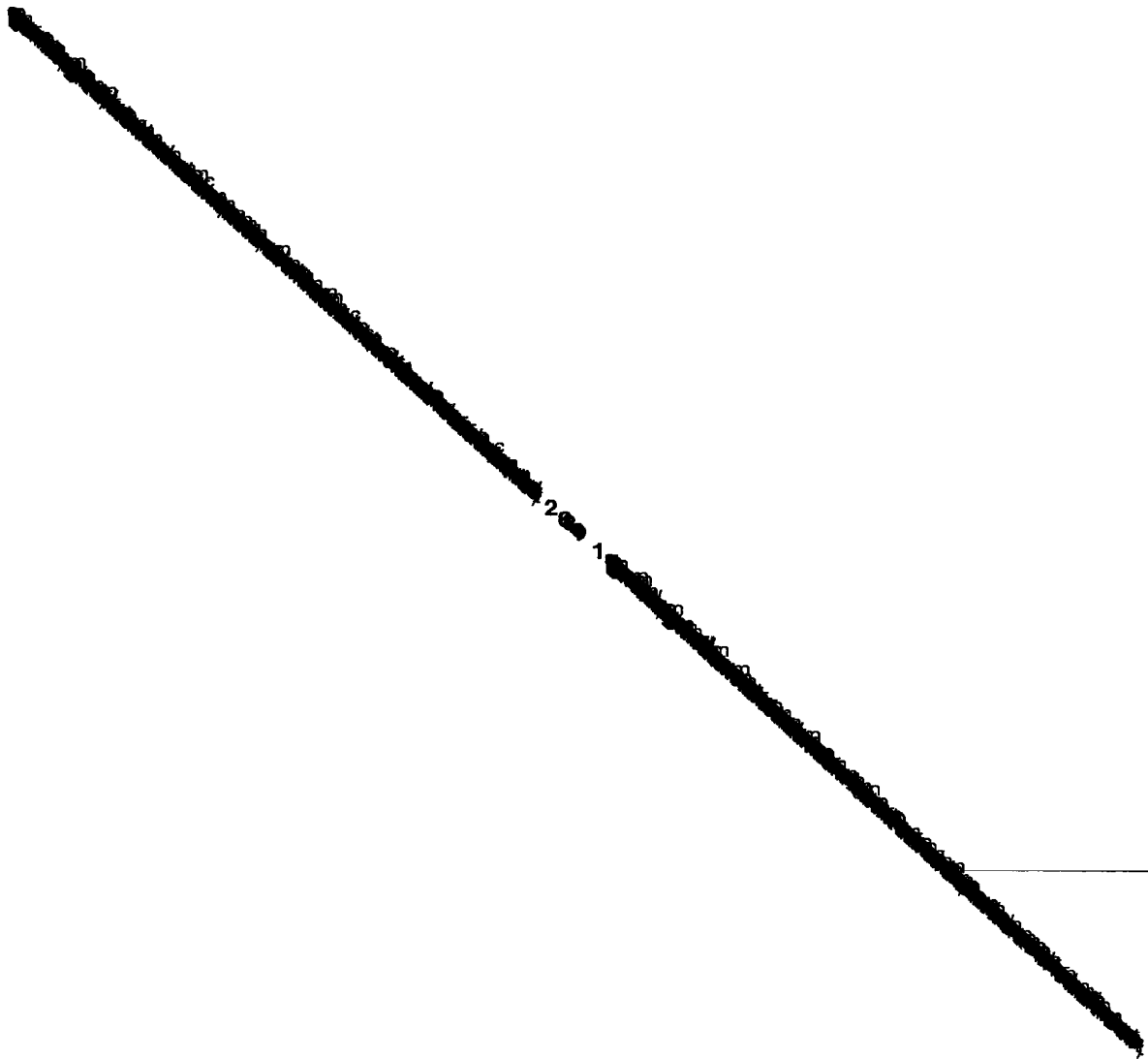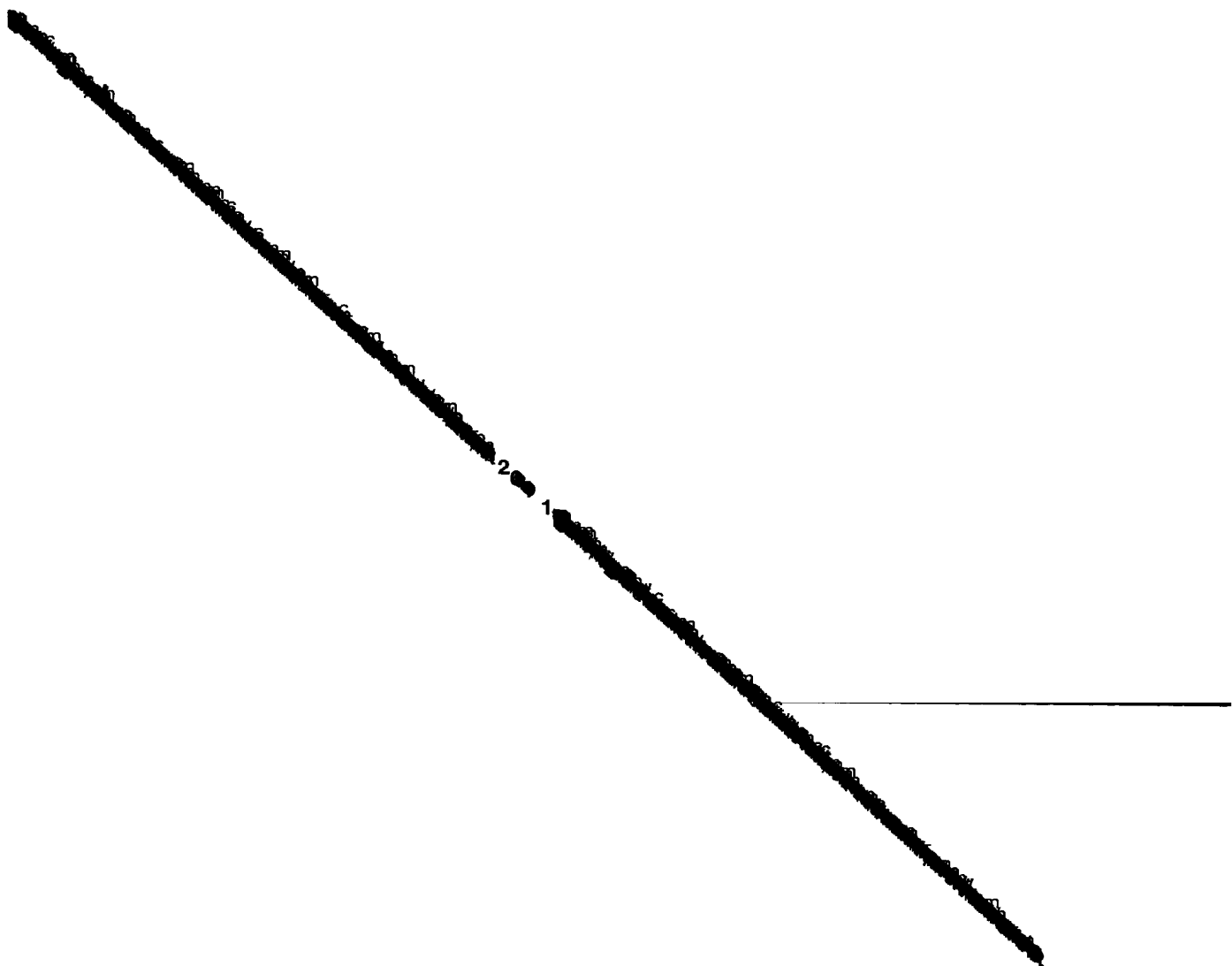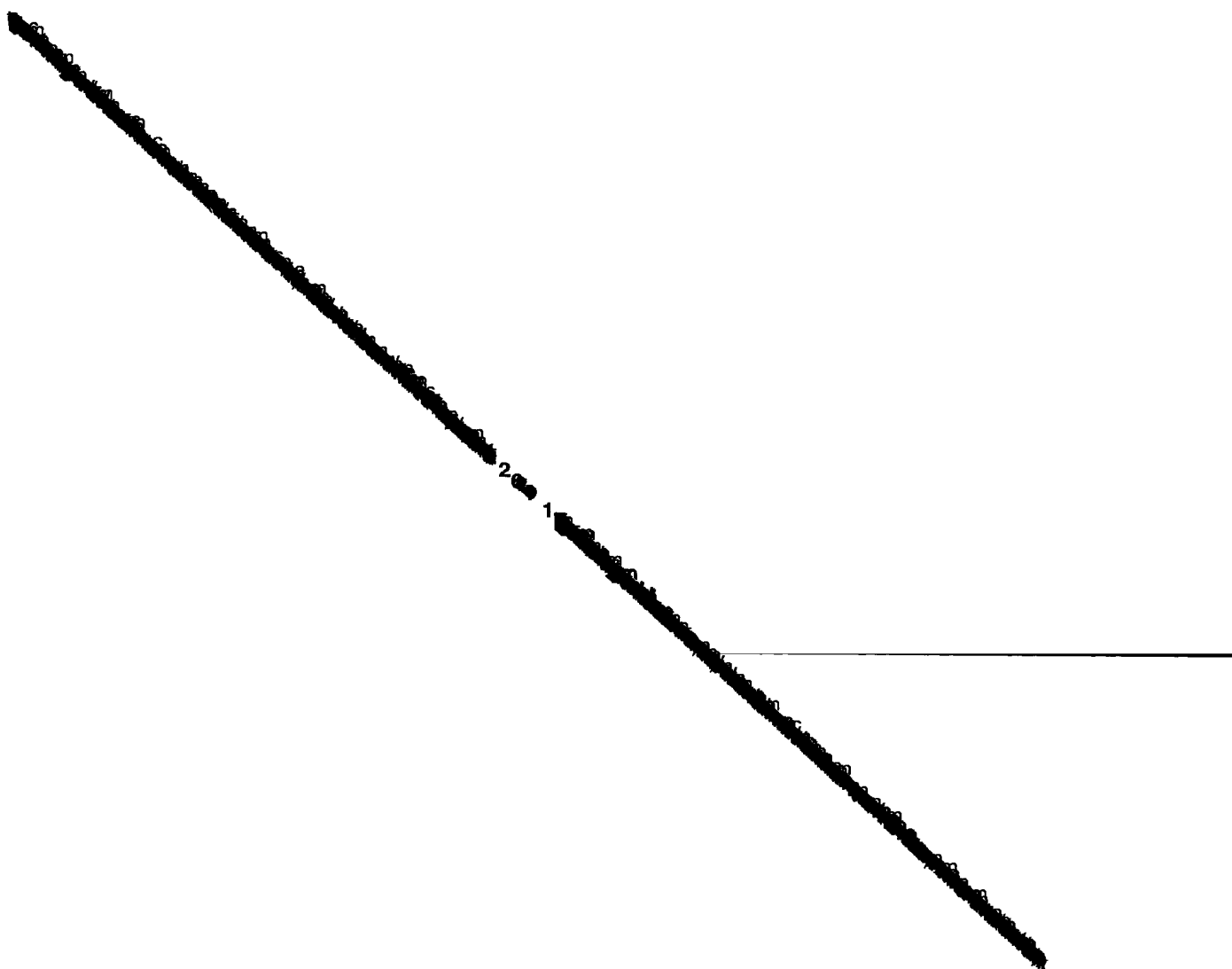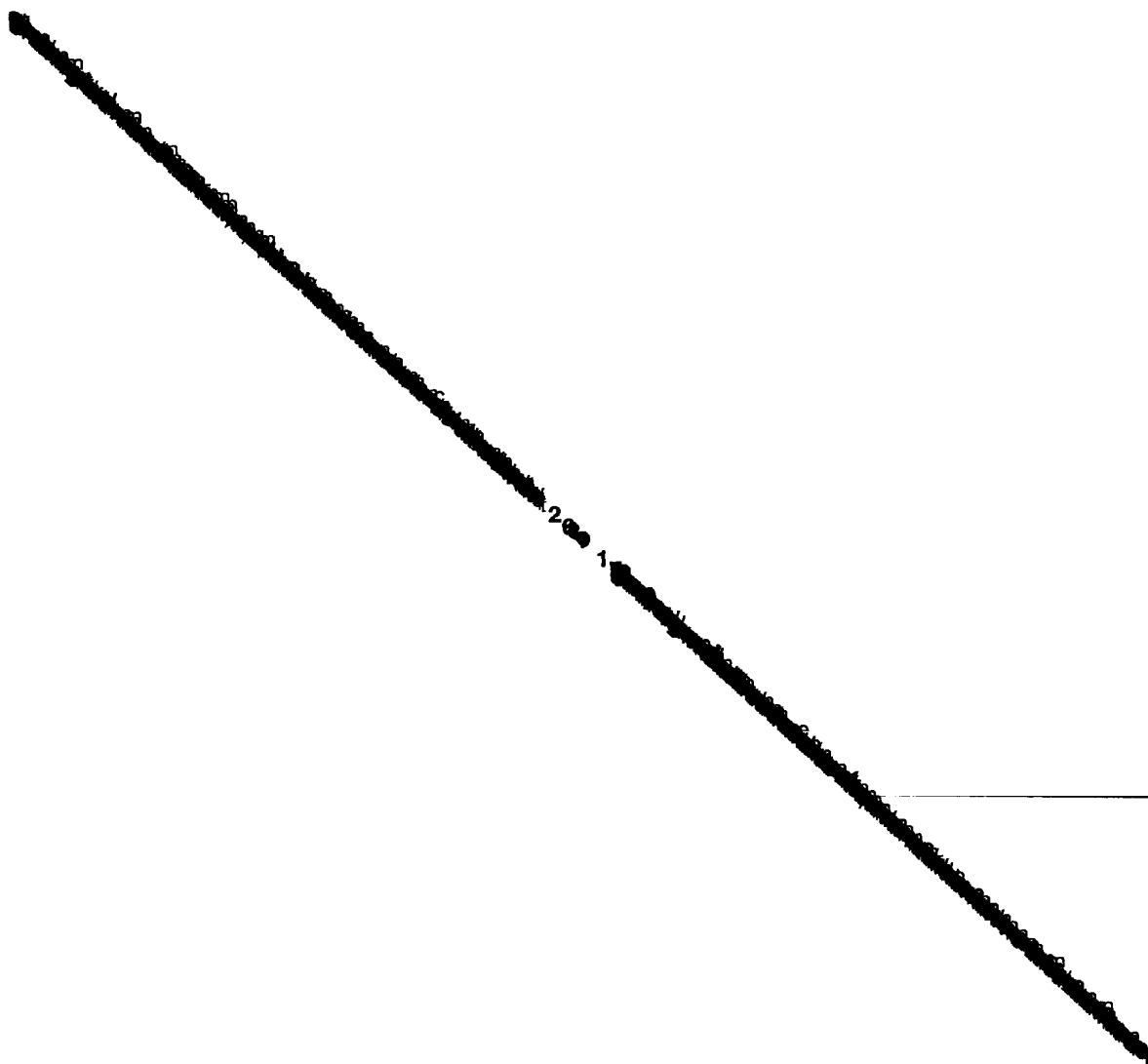
4. A slave station terminal used in a radio communications network in which one master station terminal and a plurality of slave station terminals communicate with each other, comprising:

    a radio communications part which communicates with the one master station terminal present in the radio communications network;
a control part which recognizes a selection signal intended for the slave station terminal received from the master station terminal through the radio communications part; and
a selection notifying part which performs a notifying operation based on the selection signal.

5. A slave station terminal according to Claim 4, wherein the selection notifying part has at least one of a display function and sound function, and performs at least one of a display process and sound process in accordance with the selection signal as the notifying operation.

6. A slave station terminal according to Claim 4, further comprising an operation input part which accepts an operation input of a slave station terminal identification command including a second identifier that identifies a slave station terminal,

    wherein the control part causes the radio communications part to transmit the slave station terminal identification command including the second identifier to the master station terminal.

7. A master station terminal used in a radio communications network in which one master station terminal and a plurality of slave station terminals each having an identification number specific thereto communicate with each other, comprising:

    a radio communications part which detects the plurality of slave station terminals present in the radio communications network, and communicates with the slave station terminals; and
a control part which generates a request signal requesting the slave station terminals detected by the radio communication part to return the identification numbers of the slave station terminals, and causes the radio communications part to transmit the request signal to each of the detected slave station terminals sequentially;

    wherein the radio communications part receives the identification number returned by each of the slave station terminals which have received the request signal, and
the control part stores the returned identification number along with a slave station terminal name associated therewith, and notifies the slave station terminal name and the identification number

thereof in association with each other, when a process of communicating with each of the slave station terminals is performed by the radio communications part.

8. A slave station terminal used in a radio communications network in which one master station terminal and a plurality of slave station terminals each having an identification number specific thereto communicate with each other, comprising:

    a radio communications part which communicates with the one master station terminal present in the radio communications network; and
a control part which causes the radio communications part to return the identification number of the slave station terminal to the master station terminal in accordance with a request signal received from the master station terminal.

9. A master station terminal according to Claim 1, wherein a Bluetooth radio communications system is used as the radio communications network, and a Bluetooth terminal module is used as the radio communications part.

10. A slave station terminal according to Claim 4, wherein a Bluetooth radio communications system is used as the radio communications network, and a Bluetooth terminal module is used as the radio communications part.